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10/069,067	02/21/2002	Eiichi Miyake	57454-470	9013

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EXAMINER

KIM, PETER B

ART UNIT	PAPER NUMBER
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Please find below and/or attached an Office communication concerning this application or proceeding.



## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 4, 5, and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masuyuki et al. (Masuyuki) (6,137,562).

Masuyuki discloses a board (W) supporting stage provided in an exposure system wherein a photomask and a board are stacked one on another in proximity or in contact and the board is irradiated, the board supporting stage comprising a negative pressure suction means (80, 82, 84, 86) for supporting the board in tight contact on a plane, a flat plate element, including a first element (70), a second element (50) and a third element (26), supporting the board. Masuyuki discloses the first and second element each provided with negative pressure suction holes (72, 52) for exerting suction on the board, and the third element having a header function for collectively connecting negative pressure suction holes (Fig. 1, 3, 4, ref. 84, 86, 26). Masuyuki teaches grooves (Fig. 3, 4) used for aligning the first and second elements so that the position of corresponding suction holes provided in the second and first elements match. Masuyuki teaches in Fig. 4, the diameter of the first element suction holes equal or different from a diameter of the holes in the second element. However, Masuyuki does not disclose a board with through holes or first element made of plastic or the third element made of an elastic element. An official notice is taken regarding the material of the elements that it is well known

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to provide the elements made from plastic and elastic material. Masuyuki does teach suction holes (54) in the second element to avoid the region of the suction holes (72) provided on the first element in order too tightly hold the first and second element together. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to provide the method of avoiding through holes provided on the board and the flat plate elements made from plastic and elastic element because the board would be held more tightly if the negative pressure suction means avoided the through holes in the board just as it was more effective for Masuyuki to hold the first element and the second element together by avoiding the holes (72).

Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Masuyuki et al. (Masuyuki) as applied to claim 2 above, and further in view of van Schaik et al. (Schaik) (2001/0022652).

The further difference between the modified Masuyuki and the claimed invention is forming the suction holes in the first element based on the data showing the position of the holes in the second element and the through holes in the board. Schaik discloses in para. 0078, selectively closing or exposing the holes in the first element depending on the type of the board. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to provide the method of forming the suction holes in the first element based on the data showing the position of the holes in the second element and the board in order to provide the most effective negative pressure suction hold as taught by Schaik in para. 0078.

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Claims 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masuyuki et al. (Masuyuki) as applied to claim 1 above, and further in view of Bowen (5,966,203).

The further difference between the modified Masuyuki and the claimed invention is the supporting the first element by the suction hole provided on an outer edge of the second element and switching suction regions according to the size of the board. Bowen discloses holding the first element (170) by the holes in the outer edge of the second element 112 and switching suction region according to the size of the board (col. 6, line 64 – col. 7, line 35). Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to provide the suction hole in the edge and the change the suction region according to the size of the board to prevent warping of the board and to maintain flatness as taught by Bowen in col. 1, line 35 – col. 2, line 8.

Claims 9-13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Masuyuki et al. (Masuyuki) in view of Ootorii (JP 4-112247).

Masuyuki discloses Masuyuki discloses a board (W) supporting stage provided in an exposure system wherein a photomask and a board are stacked one on another in proximity or in contact and the board is irradiated, the board supporting stage comprising a negative pressure suction means (80, 82, 84, 86) for supporting the board in tight contact on a plane, a flat plate element, including a first element (70), a second element (50) and a third element (26), supporting the board. Masuyuki discloses the first and second element each provided with negative pressure suction holes (72, 52) for exerting suction on the board, and the third element having a header function for collectively connecting negative pressure suction holes (Fig. 1, 3, 4,

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ref. 84, 86, 26). Masuyuki teaches grooves (Fig. 3, 4) used for aligning the first and second elements so that the position of corresponding suction holes provided in the second and first elements match. Masuyuki teaches in Fig. 4, the diameter of the first element suction holes equal or different from a diameter of the holes in the second element. However, Masuyuki does not disclose a board with through holes or using negative pressure suction pad. Masuyuki does teach suction holes (54) in the second element to avoid the region of the suction holes (72) provided on the first element in order too tightly hold the first and second element together. Ootorii discloses using the suction pad being shaped and sized to exert suction on the board. Therefore, it would have been obvious to one of ordinary skill in the art at the time of invention to provide the method of avoiding through holes provided on the board and suction pad to hold the board because the board would be held more tightly if the negative pressure suction means avoided the through holes in the board just as it was more effective for Masuyuki to hold the first element and the second element together by avoiding the holes (72) and the suction pads are formed to contact the board and to provide airtight attachment as taught by Ootorii.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Peter Kim whose telephone number is (703) 305-0105. The examiner can normally be reached on Monday-Thursday from 8:30 AM to 6:00 PM. The examiner can also be reached on alternate Fridays during the same hours.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Russ Adams can be reached on 703 308 2847. The fax phone numbers for the organization where this application or proceeding is assigned is 703 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703 306- 3431.

A handwritten signature in black ink, appearing to read 'Peter B. Kim', with a stylized, flowing script.

Peter B. Kim  
Patent Examiner  
August 15, 2003